three polar bear generations (45 years), as determined by the method described in the following paragraph. Long-term studies have demonstrated, and world experts (e.g., PBSG) are in agreement, that three generations is an appropriate timespan to use to reliably assess the status of the polar bear and the effects of threats on population-level parameters (e.g., body condition indices, vital rates, and population numbers). This is based on the life history of the polar bear, the large natural variability associated with polar bear population processes, and the capacity of the species for ecological and behavioral adaptation (Schliebe et al. 2006a, pp. 59–60). Although not relied on as the basis for determining ''foreseeable future'' in this rule, the correspondence of this timeframe with important biological considerations provides greater confidence for this listing determination.

Polar bears are long-lived mammals, and adults typically have high survival rates. Both sexes can live 20 to 25 years (Stirling and Derocher 2007), but few polar bears in the wild live to be older than 20 years (Stirling 1988, p. 139; Stirling 1990, p. 225). Due to extremely low reproductive rates, polar bears require a high survival rate to maintain population levels. Survival rates increase up to a certain age, with cubs-of-the-year having the lowest rates and prime age adults (between 5 and 20 years of age) having survival rates that can exceed 90 percent. Generation length is the average age of parents of the current cohort; generation length therefore reflects the turnover rate of breeding individuals in a population. We adapted the criteria of the IUCN Red List process (IUCN 2004) for determining polar bear generation time in both the proposed rule (72 FR 1064) and this final rule. A generation span, as defined by IUCN, is calculated as the age of sexual maturity (5 years for polar bears) plus 50 percent of the length of the lifetime reproductive period (20 years for polar bears). The IUCN Red List process also uses a three-generation timeframe ''to scale the decline threshold for the species'' life history'' (IUCN 2004), recognizing that a maximum time cap is needed for assessments based on projections into the future because ''the distant future cannot be predicted with enough certainty to justify its use'' in determining whether a species is threatened or endangered. Based on these criteria, the length of one generation for the polar bear is 15 years, and, thus, three generations are 45 years.

The appropriate timeframe for assessing the effects of threats on polar bear population status must be determined on the basis of an assessment of the reliability of available biological and threat information at each step. For polar bear, the reliability of biological information and, therefore, population status projections, increases if a multigenerational analysis is used. In general, the reliability of information and projections increases with time, until a point when reliability begins to decline again due to uncertainty in projecting threats and corresponding responses by polar bear populations (S. Schliebe, pers. comm., 2008). This decline in reliability depends on the level of uncertainty associated with projected threats and their relationship to the population dynamics of the species. With polar bears, we expect the reliability of population status projections to diminish around 4–5 generations. Thus, ±3 generations is the optimal timeframe to reliably assess the status of the polar bear response to population-level threats. This progression can be illustrated by results from studies of the Western Hudson Bay polar bear population.

In western Hudson Bay, break-up of the annual sea ice now occurs approximately 2.5 weeks earlier than it did 30 years ago (see discussion of ''Western Hudson Bay'' population under Factor A and Stirling and Parkinson 2006, p. 265). Stirling and colleagues measured mean estimated mass of lone adult female polar bears from 1980 through 2004, and determined that their average weight declined by about 65 kg (143 lbs) over that period. Stirling and Parkinson (2006, p. 266) project that cub production could cease in 20 to 30 years if climate trends continue as projected by the IPCC. The overall timeframe covered by this scenario is 45–55 years, which is within the ±3 generation timeframe. In addition, Regehr et al. (2007a, p. 2,673) analyzed population trend data for 1987 through 2004 and documented a long-term, gradual decline in population size that is anticipated to continue into the future. These two lines of evidence indicate that the species will likely be in danger of extinction within the next 45 years. Beyond that timeframe, the population trend and threats information are too uncertain to reliably project the status of the species.

In summary, we considered the timeframe over which the best available scientific data allow us to reliably assess the effect of threats on the polar bear, and determined that there is substantial scientific reliability associated with climate model projections of sea ice change over the next 40–50 years. Confidence limits are much closer (i.e., more certain) for projections of the next 40–50 years and all projections agree that sea ice will continue to decrease. In comparison, periods beyond 50 years exhibit wider confidence limits, although all trends continue to express warming and loss of sea ice (IPCC 2007, p. 749; Overland and Wang 2007a, pp. 1–7; Stroeve et al. 2007, pp. 1–5). This timespan compares well with the 3-generation (45-year) timeframe over which we can reliably evaluate the effects of environmental change on polar bear life history and population parameters. Therefore, we believe that a 45-year foreseeable future is a reasonable and objective timeframe for analysis of whether polar bears are likely to become endangered.

This 45-year timeframe for assessing the status of the species is consistent with the work of the PBSG in reassessing the status of polar bears globally in June 2005 (Aars et al. 2006, p. 31) for purposes of IUCN Red List classification. More than 40 technical experts were involved in the PBSG review (including polar bear experts from the range countries and other invited polar bear specialists), and these PBSG technical experts supported the definition of a polar bear generation as 15 years, and the application of three generations as the appropriate timeframe over which to evaluate polar bear population trends for the purposes of IUCN Red List categorization. Although the Red List process is not the same as our evaluation for listing a species under the Act, the basic rationale for determining generation length and timeframe for analysis of threats is similar in both. None of the experts raised an issue with the 45-year timeframe for analysis of population trends.

In addition, when seeking peer review of both the *Status Review* (Schliebe et al. 2006a) and the proposed rule to list the polar bear as threatened (72 FR 1064), we specifically asked peer reviewers to comment on the 45-year foreseeable future and the method we used to derive that timeframe. All reviewers that commented on this subject indicated that a 45-year timeframe for the foreseeable future was appropriate, with the exception of one reviewer who thought the foreseeable future should be 100 years. Thus, both the independent reviews by PBSG and the input from peer reviewers corroborate our final decision and our rationale for using 45 years as the foreseeable future for the polar bear.